



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,254	10/22/2003	Steven K. Grumbine	00083DIV	5442
29050	7590	02/21/2006	EXAMINER	CHEN, KIN CHAN
STEVEN WESEMAN ASSOCIATE GENERAL COUNSEL, I.P. CABOT MICROELECTRONICS CORPORATION 870 NORTH COMMONS DRIVE AURORA, IL 60504			ART UNIT	PAPER NUMBER
1765				
DATE MAILED: 02/21/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/691,254	GRUMBINE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Kin-Chan Chen	1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 18 January 2006.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1,2 and 8-26 is/are pending in the application.  
 4a) Of the above claim(s) 14-22 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1,2,8-13 and 23-26 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. Claims 1,2, 8-13, and 23-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claims 1 and 2, "applying a polishing slurry to a polishing pad" is a new matter because the specification ([0013][0015; lines 2-3]) sets forth "a polishing composition is applied to the polishing pad" and composition does not include abrasive materials.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 26 recites the limitation "polishing composition" in line 1. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,2, 8-13, and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allman et al. (US 6,541,383; hereinafter "Allman'383").

In a method for chemical mechanical polishing a substrate feature, Allman'383 teaches that adherence promoting ligand may be applied to a polishing pad (so-called a planarizing surface of a planarizing member in Allman'383). The adherence promoting ligand may include a solution comprising at least one functionalized alkylsilane compound in solution (col. 7, lines 10-47; Fig. 1 (description in col. 6)). The abrasive particles suspended in liquid may be applied to a polishing pad (col. 35-45). The substrate may be moved into contact with a polishing pad such that the substrate surface feature contacts the polishing pad. The polishing pad may be move in relationship to the substrate surface.

The claimed invention differs from Allman'383 by specifying applying slurry (the combination of alkylsilane and abrasive) to the polishing pad rather than applying alkylsilane and abrasive separately. However, it would have been obvious to one with ordinary skilled in the art to that during the chemical mechanical polishing process, the

alkylsilane and abrasive are sandwiched between polishing pad and the substrate and performing same polishing function.

***The performance of two steps simultaneously which have previously been performed in sequence was held to have been obvious. In re Tatincloux 108 USPQ 125.***

As to silane formulas in claims 2, 10-13, and 23, see col. 7, lines 10-35.

As to dependent claims 8 and 9, Allman'383 teaches that the polishing slurry may include at least one metal oxide abrasive, see col. 7, lines 45.

The above-cited claims differ from Allman'383 by specifying well-known features (such as solution in claims 24 and 25) to the art of semiconductor device fabrication (the examiner takes official notice) and using various compositions (claim 26). However, composition is known to be result effective variable and commonly determined by routine experiment. The process of conducting routine experimentations (optimizations) so as to produce an expected result is obvious to one of ordinary skill in the art. In the absence of showing criticality or new, unexpected results, which is different in kind and not merely in degree from the results of the prior art, it is the examiner's position that a person having ordinary skill in the art at the time of the claimed invention would have found it obvious to modify Allman'383 by performing routine experiments (by using various compositions) to obtain optimal result and adding any of same well-known features to same in order to efficiently perform polishing operation with a reasonable expectation of success. It is noted that applicant did not traverse the aforementioned conventionality (e.g., well-known features, common

knowledge), which have been stated in the previous office action (October 31, 2005).

As such, they are taken to be admitted prior art.

4. Claims 1,2, 8-13, and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allman et al. (US 5,861,055; hereinafter "Allman'055").

In a method for polishing a substrate feature, Allman'055 (col. 1, lines 1-44; col. 4, lines 58-63; col. 5, lines 9-25; lines 38-40) teaches that a polishing composition may be applied to a polishing substrate. The polishing composition may include a solution comprising at least one functionalized alkylsilane compound in solution and at least one abrasive. Because the prior art is used for polishing and planarizing the surface of semiconductors, therefore, moving the substrate into contact with a polishing pad such that the substrate surface feature contacts the polishing pad is expected to one skilled in the art of chemical mechanical polishing. Allman'055 teaches that the polishing composition may comprise at least one silane in solution (claims 2, 10-13, 23).

The claimed invention differs from Allman'055 by specifying applying slurry (the combination of alkylsilane and abrasive) to the polishing pad rather than applying alkylsilane and abrasive to the substrate. However, it would have been obvious to one with ordinary skilled in the art to that during the chemical mechanical polishing process, the alkylsilane and abrasive are sandwiched between polishing pad and the substrate and performing same polishing function.

As to dependent claims 8 and 9, Allman'055 teaches that the polishing composition may include at least one metal oxide abrasive.

As to dependent claims 24-26, see col. 4, lines 58-63; col. 5, lines 20-25, lines 31-40.

***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kin-Chan Chen whose telephone number is (571) 272-1461. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent

Art Unit: 1765

Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

February 16, 2006



Kin-Chan Chen  
Primary Examiner  
Art Unit 1765